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09/675,057	09/29/2000	Masaharu Tsuboi	0505-0692P	9453

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EXAMINER

PEREZ, GUILLERMO

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/675,057	TSUBOI, MASAHIRO
	Examiner Guillermo Perez	Art Unit 2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 May 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-17 and 20 is/are rejected.

7) Claim(s) 18 and 19 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) Interview Summary (PTO-413) Paper No(s) _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: to include in the specification a section describing, “*an area of the first region overlapped with said motor is smaller than an area of the second region not overlapped with said motor*” as added to claims 1 and 8.

Claim Objections

Claim 9 is objected to because of the following informalities: line 2 recites “the casing”, however, no casing has been previously mentioned in the claim. This terminology needs to be changed to ---a casing--- for clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 5-14, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (JP 09009577) in view of Wakao et al. (WO99/16654).

Nishikawa discloses a motor-assisted drive unit, comprising:
a motor having a shaft (5) for providing power to a load; and

a first control board (13) on which control devices (16,17) of the motor are mounted, the first control board (13) being arranged substantially perpendicularly to the shaft (5) of the motor,

at least part of the first control board (13) extending to a position overlapped with the motor (figure 1),

the first control board (13) having a first region overlapped with the motor (figure 1), and a second region not overlapped with the motor (see also figure 4), in which

an area of the first region overlapped with the motor is smaller than an area of the second region not overlapped with the motor (as seen in figure 4).

Nishikawa discloses a motor-assisted drive unit, comprising:

a motor for providing power to a load;

a first control board (13) having at least one control device (16,17) mounted thereon; and

a second board (1), wherein

the first and second boards (1,13) extend in a direction substantially perpendicular to a motor shaft (5) of the motor, said second board (1) overlapping with at least a part of the first control board (13), said first control board (13) having a first region overlapped with said motor, and

a second region not overlapped with said motor, in which

an area of the first region overlapped with said motor is smaller than an area of the second region not overlapped with said motor. Nishikawa discloses that one of the

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at least one control device (16,17) is mounted on the second region of the board not overlapped with the motor.

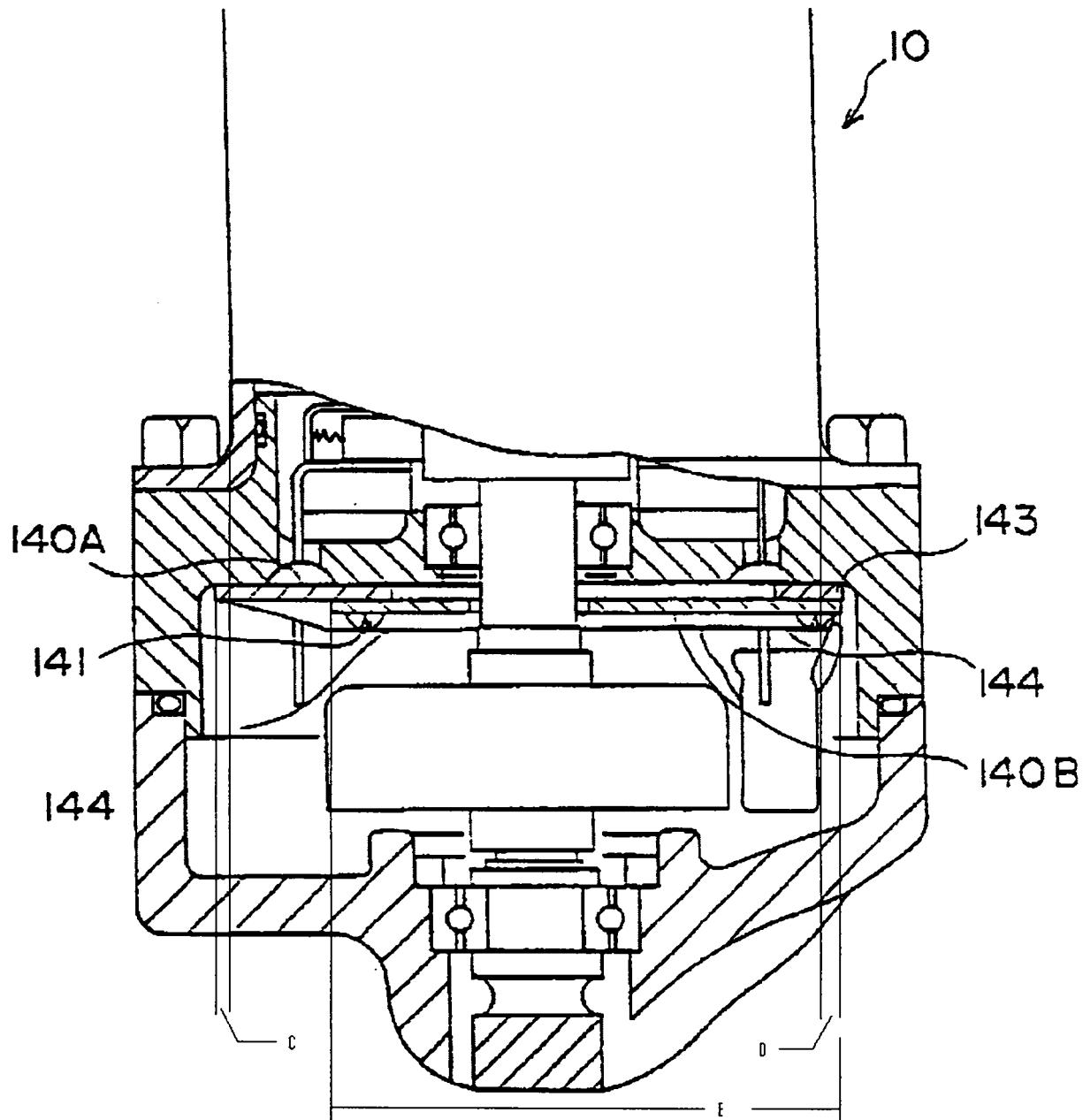
However, Nishikawa does not disclose that the motor-assisted drive unit is for a vehicle. Nishikawa does not disclose that the shaft providing power to a drive wheel of the vehicle. Nishikawa does not disclose that the second board is a control board. Nishikawa does not disclose a casing, the motor being disposed within the casing. Nishikawa does not disclose a thermally conductive board provided on a casing side of the first control board. Nishikawa does not disclose a semiconductor device mounted on said thermally conductive board.

Nishikawa does not disclose that the control devices of said motor are mounted on two surfaces of the control board. Nishikawa does not disclose that at least part of the thermally conductive board abuts the semiconductor device. Nishikawa does not disclose that at least a part of the thermally conductive board is in contact with the casing. Nishikawa does not disclose that the second board has at least one control device mounted thereon. Nishikawa does not disclose that the at least one control device mounted on the second board includes at least one of a control processor, a capacitor, and a relay.

Nishikawa does not disclose that the at least one control device mounted on the first control board includes transistor. Nishikawa does not disclose that the second board is a printed wiring board, and the first board is a metal board. Nishikawa does not disclose that the first control board includes aluminum. Nishikawa does not disclose that the motor and the first and the second boards are disposed in the casing. Nishikawa

does not disclose that the first board is attached to an inner wall surface of the casing.

Nishikawa does not disclose that the second control board is disposed over the first control board, with a gap disposed between the first control board and the second control board.



Wakao et al. disclose (according to U. S. Pat. 6,268,669 which is a translation of WO99/16654) that the motor-assisted drive unit is for a vehicle. Wakao et al. disclose that the shaft providing power to a drive wheel of the vehicle. Wakao et al. disclose that the second board is a control board. Wakao et al. disclose a casing (20 in figure 2), the motor (10) being disposed within the casing (20). Wakao et al. disclose a second control board (140A) having a first region overlapped with said motor (10), a second region (C *in the attached figure*) not overlapped with said motor (10), and a processing unit (43) mounted on a first region of the second control board (140A), said processing unit (43) being one of the control devices (41).

Wakao et al. disclose a thermally conductive board (140A) provided on a casing side of the first control board (140B); and

a semiconductor device (43) mounted on the thermally conductive board (140A), wherein the control devices (41,42) of the motor (10) are mounted on two surfaces of the control board (140A,140B).

Wakao et al. disclose that at least part of the thermally conductive board (140A) abuts the semiconductor device (43). Wakao et al. disclose that at least a part of the thermally conductive board (140A) is in contact with the casing (20). Wakao et al. disclose that the first and the second control boards (140A, 140B) are disposed in the casing (20). Wakao et al. disclose that the at least one control device (42) mounted on the second control board (140B) includes at least one of:

- a control processor (47),
- a capacitor, and

a relay.

Wakao et al. disclose that the at least one control device (41) mounted on the first control board (140A) includes transistor (43). Wakao et al. disclose that the second control board (140B) is a printed wiring board, and the first control board (140A) is a metal board. Wakao et al. disclose that the first control board (140A) includes aluminum (column 12, lines 40-44). Wakao et al. disclose that the first control board (140A) is attached to an inner wall surface of the casing (20).

Wakao et al. disclose that the second control board (140B) is disposed over the first control board (140A), with a gap disposed between the first control board (140A) and the second control board (140B). Wakao et al. disclose that at least one of the control devices (43) is disposed on one side of the motor (10 through the board housing 22). The invention of Wakao et al. has the purpose of improving the heat releasing property from the circuit boards and the output shaft.

It would have been obvious at the time the invention was made to modify the motor-assisted drive unit of Nishikawa and provide it with the control boards configuration disclosed by Wakao et al. for the purpose of improving the heat releasing property from the circuit boards and the output shaft.

2. Claims 4, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa in view of Wakao et al. as applied to claim 3 above, and further in view of Okada (U. S. Pat. 5,444,314).

Nishikawa and Wakao et al. disclose a motor-assisted drive as described on item 1 above. However, neither Nishikawa nor Wakao et al. disclose a rubber member

disposed around a casing boss portion for rotationally support the motor shaft of the motor to elastically support the second control board. Neither Nishikawa nor Wakao et al. disclose that the rubber member is compressed between the second control board and a motor supporting portion of the casing.

Okada discloses a rubber member disposed around a casing boss portion for rotationally support the motor shaft of the motor to elastically support the second control board. Okada discloses that the rubber member (14) is compressed between the control board (12) and a motor supporting portion (15) of the casing (1). Okada's invention has the purpose of dampening vibration and providing a soundproofing casing to the motor.

It would have been obvious at the time the invention was made to modify the motor-assisted drive of Nishikawa and Wakao et al. and provide it with the rubber configuration disclosed by Okada for the purpose of dampening vibration and providing a soundproofing casing to the motor.

Allowable Subject Matter

Claims 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claim 2 have been considered but are moot in view of the new ground(s) of rejection.

Regarding Applicant's remark that the subject matter of objected-to claim 19 is incorporated into independent claim 8, therefore, placing independent claim 8 and

claims 9-13 in condition for allowance, it must be noted that claim 8 as amended does not include the limitations of claim 19. Claim 8 was modified to include the limitations added to claim 1.

Regarding Applicant's remark that claim 19 was canceled, it must be noted that claim 19 still shows as being pending in the application. The amendment filed on May 28, 2003 did not cancel claim 19.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-

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5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez
Thursday, July 31, 2003

Guillermo Perez
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